

1. A patio door assembly comprising a rectangular main frame including a pair of vertical jamb members rigidly connected by a top head member and a bottom sill member, a vertical astragal member spaced between said jamb members and rigidly connected to said head and sill members, said astragal member extending a substantial portion of the depth of said head and sill members, a first door panel within said main frame and including a rectangular door panel frame supporting a glass panel, a second door panel within said main frame and including a rectangular door panel frame supporting a glass panel, said astragal member and each of said door panel frames and said members of said main frame comprising extrusions of rigid plastics material, an elongated continuous gear hinge extending between said head and sill members, and said gear hinge having an inactive leaf secured to said astragal member and an active leaf secured to said frame of said second door panel and covering an edge surface of said second door panel frame.

2. A patio door assembly as defined in claim 1 wherein said frame of each said door panel comprises parallel spaced outer side walls and inner walls spaced substantially parallel to said side walls, and a plurality of internal walls extending laterally of said side walls and integrally connecting said side and inner walls.

3. A patio door assembly as defined in claim 1 wherein said inactive leaf of said gear hinge is longer than said active leaf of said gear hinge and precisely positions said second door panel in spaced relation between said head and sill members.

4. A patio door assembly as defined in claim 1 wherein said astragal member includes parallel spaced side walls integrally connected by interior and exterior end walls, integral stop portions projecting laterally outwardly from said side walls for stopping said frames of said door panels, a plurality of spaced internal walls extending laterally of said side walls of said astragal member and integrally connecting said side walls, and said internal walls adjacent said interior and exterior end walls of said astragal member having

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10 longitudinally extending portions defining holes receiving vertical threaded fasteners extending through said jamb and sill members.

5. A patio door assembly as defined in claim 1 and including a metal approach member mounted on said sill member, and said approach member having an upwardly projecting horizontal track extending between said jamb members and adapted to support a sliding screen door.

6. A patio door assembly as defined in claim 5 wherein said approach member includes an inner portion defining a groove, and a flexible door seal projecting into said groove.

7. A patio door assembly as defined in claim 1 and including an insert strip attached to exterior portions of said head and jamb members to define a channel adapted to receive a sliding screen door.

8. A patio door assembly as defined in claim 1 wherein at least one of said door panel frames defines a peripherally extending groove, and a spacer member retained within said groove.

9. A patio door assembly as defined in claim 8 wherein said groove in said one door panel frame is defined by spaced inner walls having opposing ribs projecting into said groove, and said spacer member comprises a spacer channel having U-shaped portions engaging said ribs
5 with a snap-fit connection.

10. A patio door assembly as defined in claim 1 wherein said inactive leaf of said gear hinge includes a longitudinally extending rib for precisely locating said hinge on said astragal member.

11. A patio door assembly as defined in claim 1 wherein said active leaf of said gear hinge includes a longitudinally extending curved edge portion for precisely locating said hinge on said second door panel frame.

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12. A patio door assembly comprising a rectangular main frame including a pair of vertical jamb members rigidly connected by a top head member and a bottom sill member each having substantially the same cross-sectional configuration, a vertical astragal member spaced
5 between said jamb members and rigidly connected to said head and sill members, a first door panel within said main frame and including a rectangular door panel frame supporting a glass panel, a second door panel within said main frame and including a rectangular door panel frame supporting a glass panel, each of said door panel frames having
10 substantially the same cross-sectional configuration around the corresponding said glass panel, said astragal member and each of said door panel frames and said members of said main frame comprising extrusions of rigid plastics material, said main frame and each of said door panel frames having welded mitered corner joints, an elongated
15 continuous gear hinge extending between said head and sill members, and said gear hinge having an inactive leaf secured to said astragal member and an active leaf secured to said frame of said second door panel and covering an edge surface of said second door panel frame.

13. A patio door assembly as defined in claim 12 wherein said frame of each said door panel comprises parallel spaced outer side walls and inner walls spaced substantially parallel to said side walls, and a plurality of internal walls extending laterally of said side walls and
5 integrally connecting said side and inner walls.

14. A patio door assembly as defined in claim 12 wherein said inactive leaf of said gear hinge is longer than said active leaf of said gear hinge and precisely positions said second door panel in spaced relation between said head and sill members.

15. A patio door assembly as defined in claim 12 wherein said astragal member includes parallel spaced side walls integrally connected by interior and exterior end walls, integral stop portions projecting laterally outwardly from said side walls for stopping said
5 frames of said door panels, a plurality of spaced internal walls

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16. A patio door assembly as defined in claim 12 and including a metal approach member mounted on said sill member, said approach member having an upwardly projecting horizontal track extending between said jamb members and adapted to support a sliding screen door, having an inner portion defining a groove, and a flexible door seal projecting into said groove.
17. A patio door assembly as defined in claim 12 and including an L-shaped insert strip attached in snap-fit relation to exterior portions of said head and jamb members to define a channel adapted to receive a sliding screen door.
18. A patio door assembly as defined in claim 12 wherein each of said door panel frames defines a peripherally extending groove, a spacer member retained within said groove of said first door panel frame, and a lock member retained within said groove of said second door panel frame.
19. A patio door assembly as defined in claim 18 wherein said groove in said one door panel frame is defined by spaced inner walls having opposing ribs projecting into said groove, and said spacer member comprises a spacer channel having portions engaging said ribs with a snap-fit connection.
20. A patio door assembly as defined in claim 18 wherein said inactive leaf of said gear hinge includes a longitudinally extending rib for precisely locating said hinge on said astragal member.

21. A patio door assembly as defined in claim 18 wherein said active leaf of said gear hinge includes a longitudinally extending curved edge portion for precisely locating said hinge on said second door panel frame.

22. A patio door assembly comprising a rectangular main frame including a pair of vertical jamb members rigidly connected by a top head member and a bottom sill member, said main frame further including a vertical astragal member spaced between said jamb members and rigidly
5 connected to said head and sill members, a first door panel within said main frame and including a rectangular door panel frame supporting a glass panel, a second door panel within said main frame and including a rectangular door panel frame supporting a glass panel, said astragal member and each of said door panel frames and said members of said main
10 frame comprising extrusions of rigid plastics material, said main frame and each of said door panel frames having welded mitered corner joints, a hinge member having an inactive leaf secured to said main frame and an active leaf secured to said frame of said second door panel, said first door panel frame having spaced inner wall defining a peripherally
15 extending groove, and a snap-in spacer member retained within said groove.

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